

ORD 1025  
10-15-12  
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**From:** Hendershot, Philip  
**To:** Smith, Michael J.; Pickus, Wayne; Eisenbeis, John; Gilliam, Jessica  
**Cc:** Bath, Bill  
**Subject:** Preliminary Research Results-K088 Landfills and Gas Generation  
**Date:** Thursday, August 16, 2012 12:15:20 PM  
**Attachments:** RE Research Request.mso  
Paper Gagnon Zagury et al Jan 15 2004 .pdf  
2002-ROD for KaiserAlum Spokane(r1002106).pdf  
2006-Intalco Cleanup Action Plan-Landfill Closure Program.pdf

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I have received some initial research results from our info center, as summarized with links in the attached email. I have gone through the links and compiled the summary below, and attached a couple of documents of interest.

#### Generation, Sampling, Treatment of Gases from K088/SPL Landfills

Search of research periodicals, EPA reports, etc. hasn't turned up anything directly relevant yet. One 2004 article is attached that has some pretty good cyanide chemistry info related to natural microbial degradation in groundwater around SPL landfill in Canada. I didn't dig deep into this, but noted that cyanide destruction is apparently more productive in aerobic mode than anaerobic.

#### K088/SPL Landfills in EPA Region 10

Using conventional government databases and internet research, info was obtained on 3 sites discussed below:

- 1) Kaiser Aluminum – Mead Works in Spokane, WA - The 2002 ROD for this facility (see attached) was on-line, but nothing more detailed; no mention of a RCRA Permit. Focus on pp 38-43 in the pdf. It looks like they capped a consolidation of waste piles and landfills under one big cap, but a portion of the original area capped appears to be a dedicated SPL fill (formerly under an asphalt cap). The "Final Grading Plan" does show some gas vents, one of which is overtop of the former SPL fill. I believe the mega-cap was completed in 2001.
- 2) Intalco – Ferndale, WA – A 2006 Cleanup Action Plan (see attached) was on-line, which is a fairly succinct summary document written by state agency. Focus on the yellow highlighted areas of the document. One unit onsite has operated under RCRA interim status for disposal of K088/SPL, the "Dangerous Waste Triple-Lined Landfill". However, they have apparently been disposing of other non-SPL wastes in this unit in recent years, including PCBs, and it may just now be moving toward closure based on this one document. Content of this landfill may not be comparable to The Dalles. [NOTE: CDM has worked at this site, but the information provided herein is solely from search of publicly available documents.]
- 3) Chemical Waste Management – Arlington, OR - So far only basic corporate info has been accessed. They still list SPL treatment as one of their services. I would like to call them directly, anonymous to LMC obviously, to simply ask whether they segregate their K088 wastes from others and whether they have any closed cells only for K088. I suspect the answer is no in both cases. Let me know if OK to call them. In the mean-time, I am trying to get their RCRA Permit through through a pay-per-view site that has turned up.

#### Potential Use of Subcontractor

Without direct contact or any mention of LMC, I have found out more about a potential

subcontractor who could likely provide some in-depth knowledge. He is ex-Alcoa, and under contract with CDM Smith. His knowledge is not only regulatory/SPL but reportedly fairly deep on the cyanide chemistry side also. He does landfill audits. Let me know if we want to pursue this.

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**From:** Bath, Bill [mailto:bill.bath@lmco.com]  
**Sent:** Wednesday, August 08, 2012 3:15 PM  
**To:** Hendershot, Philip; Smith, Michael J.  
**Cc:** Pickus, Wayne; Eisenbeis, John; Gilliam, Jessica  
**Subject:** RE: Research-K088 Generators

Excellent find. There are at least 7 in Region 10, including our 2 sites. I will follow up with my reasonable Washington regulator (Skylkingstad) on the 4 Washington aluminum plants: I think he will just tell me whether there are any K088 closed landfills.

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Alcoa sites are prominent. While we cannot contact Alcoa at present, I could try to get permission to establish contact on this. I think we should try the records approach first before seeking permission for direct contact.

Bill Bath  
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*Think before printing this e-mail*

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**From:** Hendershot, Philip [mailto:HendershotPT@cdmsmith.com]  
**Sent:** Tuesday, August 07, 2012 3:05 PM  
**To:** Smith, Michael J.  
**Cc:** Bath, Bill; Pickus, Wayne; Eisenbeis, John; Gilliam, Jessica  
**Subject:** EXTERNAL: RE: Research-K088 Generators

Agree – the map attached tells us where to start.

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**From:** Smith, Michael J.

**Sent:** Tuesday, August 07, 2012 1:03 PM  
**To:** Hendershot, Philip  
**Cc:** Bath, Bill; Pickus, Wayne; Eisenbeis, John; Gilliam, Jessica  
**Subject:** RE: Research

We should probably expand to the CERCLA universe and potentially state landfill closures at aluminum plants.

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**From:** Hendershot, Philip  
**Sent:** Tuesday, August 07, 2012 10:33 AM  
**To:** Smith, Michael J.  
**Cc:** Bath, Bill; Pickus, Wayne; Eisenbeis, John; Gilliam, Jessica  
**Subject:** RE: Research

I haven't seen "comments on the latest air plan" (please forward), but these research topics have already been on my list and we made some progress toward these earlier when the "treatment" in landfill topic came up. We may need to split these topics up for timely research. Here are my initial thoughts:

We want to do some research related to the comments on the latest air plan. Could one of you take the lead in researching the following questions:

- Are there other k088 landfills in the 10, or other regions if there are none [Earlier research using the most recent Government Performance & Results Act (GPRA) Baseline Report indicates 16 total RCRA landfills in Region 10, 7 of which hold post-closure permits. None of these, except for LMC, appear to be aluminum related, based on the name of the permittee. CDM Library could not locate any of the RCRA Permits on line, and they called Region 10 to inquire about online availability (none). The only way to get a permit in Region 10, if we found one we wanted, is through FOIA request. The GPRA Baseline Report may not capture the full universe of RCRA-permitted sites in Region 10, but it likely captures the bulk of those sites that have gone through some form of RCRA Corrective Action. The next most logical step would be to utilize an experienced researcher to directly mine info from the "RCRIS-TSD" database. The data center at CDM Denver should have full access to RCRIS-TSD.]
- What is the status of these closed k088 landfills, permit status, monitoring, findings on HCN landfill gas, treatment of waste and or leachate [Quickest and most valuable way to research this may be through direct inquiry with Alcoa personnel, provided this can be done within audit constraints. I can see a path for this. Conventional research paths through EPA and Aluminum Association also available]
- Concerns at other sites regarding an internal landfill fire [same as above]

I have also done some initial research into air permitting angle, which was hopefully explored by Arcadis previously.

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**From:** Smith, Michael J.  
**Sent:** Tuesday, August 07, 2012 11:10 AM  
**To:** Hendershot, Philip; Pickus, Wayne  
**Cc:** Bath, Bill  
**Subject:** research

We want to do some research related to the comments on the latest air plan. Could one of you take the lead in researching the following questions:

- Are there other k088 landfills in the 10, or other regions if there are none
- What is the status of these closed k088 landfills, permit status, monitoring, findings on HCN landfill gas, treatment of waste and or leachate
- Concerns at other sites regarding an internal landfill fire

EPA has also raised concerns regarding use of biological treatment of the cyanide containing leachate and weather it is actually degrading most of the mass, or is it leading to volatilization.

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